

about 15" of wire outside the cover so that you can set the speaker up on the top of the cabinet while connecting or removing the leads.

TUNING

Tuning consists of adjusting the Q of the four pipes so that the impedance of the pipes dissipates the stored energy in the driver around F_s , resulting in a relatively flat impedance curve as shown in Figs. 3A and B. Figure 16 illustrates a simple means of measuring speaker impedance. The little battery-operated digital VOMs usually have an AC range that is flat to 5kHz or so. My old Radio Shack unit is good beyond 10kHz.

If you use the MCM driver, you must apply a gasket to the bottom of the mounting flange. The Audiomobile driver has a molded rubber mounting gasket that works fine. I used a 3/8" weather strip foam tape from Ace Hardware on my MCM driver. Use masking tape to cover the mounting screw holes to seal the cabinet. Hook up the driver and set it into the cabinet. The driver will provide an adequate seal.

Set the speaker up for test as shown in Fig. 16. Adjust the generator to provide 1V RMS across the 1k Ω resistor and make a test run measuring the voltage across the speaker ($1mV = 1\Omega$), maintaining a constant output level from the signal generator. I used one cycle steps from 15Hz to 30Hz, two cycle steps from 30Hz to 50Hz, rotating the half sponges by 90°, changing

Remove the driver from the cabinet and place it to the rear of the mounting hole. Wrap a strip of 1/2" strapping tape two-thirds around the length of the three whole sponges, centered on the 4.5" sides leaving a 6" tail. Insert the sponges into the 21.5, 30, and 42Hz tunnels with the tails pointing up and the 4.5" sponge width corresponding to the 3.75" width of the tunnel. Place the half sponges into each tunnel so that the 4.5" and the 3.5" dimensions of the sponges correspond to the 3.75" and 2.75" tunnel dimensions (Photo 5). Reliance measurement, plot it on semi log paper. The plot should look like Figure 3A or 3B, depending on the driver. You may make minor adjustments by rotating the half sponges by 90°, changing

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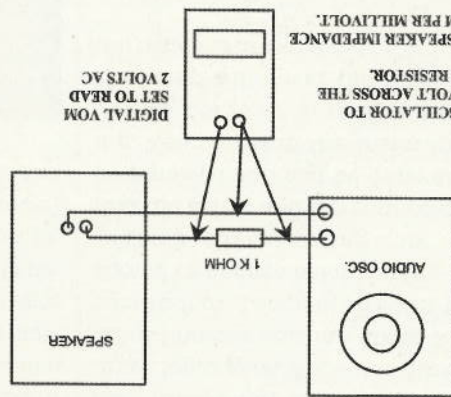
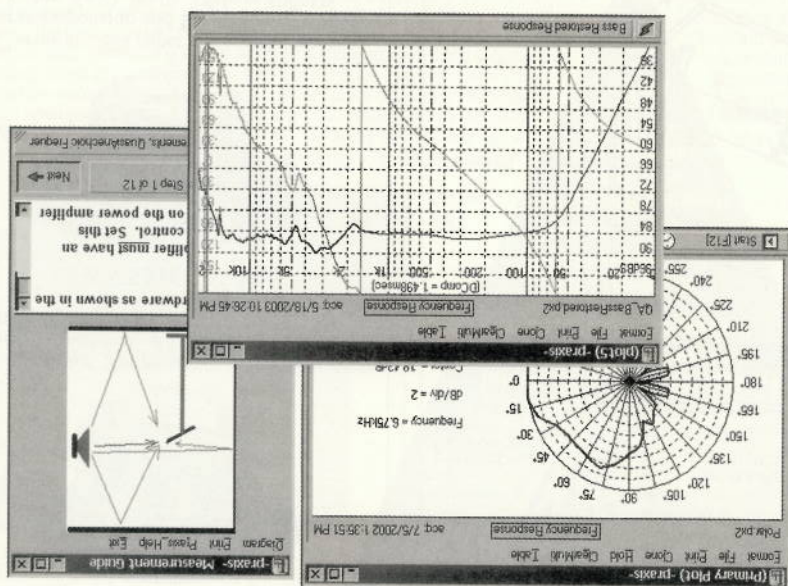


FIGURE 16: Measuring speaker impedance.

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